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Member of the Supernova Cosmology Project, SN Factory, SNAP & GOSH

Professional Experience:

- 2002–Present Computational Staff Scientist, National Energy Research Scientific Computing Center
2001–2002 Computer Scientist, National Energy Research Scientific Computing Center
1996–2001 Postdoctoral Fellow in Physics, Lawrence Berkeley National Laboratory
1995–1996 Research Assistant, University of Oklahoma

Education:

- 1997 PhD in Physics (Concentration in Astronomy), University of Oklahoma
Thesis Advisor: Edward Baron Thesis Title: *Non-LTE Spectrum Synthesis of Type Ia Supernovae.*
1993 M.S. in Physics, University of Oklahoma
1990 B.A. (*Magna Cum Laude*) in Physics (*High Honors*), Bowdoin College, Brunswick, Me.

Honors and Awards:

- 2002–2003 Department of Energy's *Big Splash* Computational Award
1997 Nielsen Award from the Physics Department, University of Oklahoma
1990–1995 GAANN Fellowship from the U.S. Dept. of Education, University of Oklahoma
1988–1990 Noel C. Little & Edwin H. Hall Physics Prizes from the Physics Department, Bowdoin College
1986–1990 James Bowdoin Scholar, Bowdoin College

Teaching Experience:

- 2004 Thesis Advisor for Daniel Kasen's U.C. Berkeley Ph.D. titled, *3-D Studies of Supernovae.*
1996–2001 Supervised three undergraduate research projects for the Supernova Cosmology Project.
1993 Created and conducted a computer laboratory class for Introductory Astronomy.
1991–1993 Taught several recitation sections of Introductory Astronomy.

Grants:

- 2001–2005 NASA Long Term Space Astrophysics Grant: Total award of \$578,221
2003–2006 NASA Astrophysics Theory Program: Total award of \$208,982
2002–2005 Hubble Space Telescope Grant: Total award of \$95,604
2000–2004 Hubble Space Telescope Grant: Total award of \$207,970
1996–Present NERSC: Allocated ~1.5 million CPU hours in 2004

Professional Activities and Society Membership:

- 2002–Present Space Telescope User's Committee
2004 UC Screening Committee for the next Director of Lawrence Berkeley National Laboratory
2000–Present PI of SNAP's "Core Collapse" Working Group
1991–Present American Astronomical Society
1996–Present Referee for *ApJ*, *ApJL*, *PRL* and *PASP*

Areas of Expertise:

Astronomy
Radiative transfer in moving atmospheres
Thermonuclear and core-collapse supernovae
Cosmology
Observation of low and high redshift supernovae

Computing
Languages: F95, C, Java, MPI
Operating Systems: Linux, AIX, Sparc, Windows
Architectures: IBM SP, Cray T3E, Linux & Sparc workstations,
Linux Clusters

Publications

Refereed Journal Articles

1. R. Knop, G. Aldering, R. Amanullah, P. Astier, G. Blanc, M. Burns, A. Conley, S. Deustua, M. Doi, R. Ellis, S. Fabbro, G. Folatelli, A. Fruchter, G. Garavini, S. Garmond, K. Garton, R. Gibbons, G. Goldhaber, A. Goobar, D. Groom, D. Hardin, I. Hook, D. Howell, A. Kim, B. Lee, C. Lidman, J. Mendez, S. Nobili, P. Nugent, R. Pain, N. Panagia, C. Pennypacker, S. Perlmutter, R. Quimby, J. Raux, N. Regnault, P. Ruiz-Lapuente, G. Sainton, B. Schaefer, K. Schahmaneche, E. Smith, A. Spadafora, V. Stanishev, M. Sullivan, N. Walton, L. Wang, W. Wood-Vasey, N. Yasuda, "New Constraints on Ω_M , Ω_Λ , and w from an Independent Set of 11 High-Redshift Supernovae Observed with the Hubble Space Telescope," *ApJ*, (2004), **598**, 102.
2. D. Kasen, P. Nugent, L. Wang, D. A. Howell, J. C. Wheeler, P. Hoflich, D. Baade, E. Baron, and P. H. Hauschildt, "Analysis of the Flux and Polarization Spectra of the Type Ia Supernova SN 2001el: Exploring the Geometry of the High-Velocity Ejecta," *ApJ*, (2003), **593**, 788.
3. L. Wang, D. Baade, P. Hoflich, A. Khokhlov, J. C. Wheeler, D. Kasen, P. Nugent, S. Perlmutter, C. Fransson, and P. Lundqvist, "Spectropolarimetry of SN 2001el in NGC 1448: Asphericity of a Normal Type Ia Supernova," *ApJ*, (2003), **591**, 1110.
4. S. Nobili, A. Goobar, R. Knop, P. Nugent, "The intrinsic colour dispersion in Type Ia supernovae," *A&A*, (2003), **404**, 901.
5. E. Baron, P. Nugent, D. Branch, P. H. Hauschildt, M. Turatto, E. Cappellaro, "Determination of Primordial Metallicity and Mixing in the Type II-P Supernova 1993W," *ApJ*, (2003), **586**, 1199.
6. M. Sullivan, R. S. Ellis, G. Aldering; R. Amanullah, P. Astier, G. Blanc, M. S. Burns, A. Conley, S. E. Deustua, M. Doi, S. Fabbro, G. Folatelli, A. S. Fruchter, G. Garavini, R. Gibbons, G. Goldhaber, A. Goobar, D. E. Groom, D. Hardin, I. Hook, D. A. Howell, M. Irwin, A. G. Kim, R. A. Knop, C. Lidman, R. McMahon, J. Mendez, S. Nobili, P. Nugent, R. Pain, N. Panagia, C. R. Pennypacker, S. Perlmutter, R. Quimby, J. Raux, N. Regnault, P. Ruiz-Lapuente, B. Schaefer, K. Schahmaneche, A. L. Spadafora, N. A. Walton, L. Wang, L. W. M. Wood-Vasey, N. Yasuda, "The Hubble diagram of type Ia supernovae as a function of host galaxy morphology," *MNRAS*, (2003), **340**, 1057.
7. P. Nugent, A. Kim and S. Perlmutter, "K-corrections and Extinction Corrections for Type Ia Supernovae," *PASP*, (2002), **114**, 803.
8. L.-G. Strolger, R. C. Smith, N. B. Suntzeff, M. M. Phillips, G. Aldering, P. Nugent, R. Knop, S. Perlmutter, R. A. Schommer, L. C. Ho, M. Hamuy, K. Krisciunas, L. M. Germany, R. Covarrubias, P. Candia, A. Athey, G. Blanc, A. Bonacic, T. Bowers, A. Conley, T. Dahlen, W. Freedman, G. Galaz, E. Gates, G. Goldhaber, A. Goobar, D. Groom, I. M. Hook, R. Marzke, M. Mateo, P. McCarthy, J. Mendez, C. Muena, S. E. Persson, R. Quimby, M. Roth, P. Ruiz-Lapuente, J. Seguel, A. Szentgyorgyi, K. von Braun, W. M. Wood-Vasey, T. York, "The Type Ia Supernova 1999aw: a Probable 1999aa-like Event In a Low-Luminosity Host Galaxy," *AJ*, **124** 2905.
9. N. Benitez, A. Riess, P. Nugent, M. Dickinson, R. Chornock, A. V. Filippenko, "The Magnification of SN 1997ff, the Farthest Known Supernova," *ApJ*, (2002), **577**, L1.
10. A. Goobar, E. Mortsell, R. Amanullah, P. Nugent, "Cosmological Parameters from Lensed Supernovae," *A&A*, (2002), **393** 25.
11. R. Pain, S. Fabbro, M. Sullivan, R.S. Ellis, G. Aldering, P. Astier, S.E. Duestua, A.S. Fruchter, G. Goldhaber, A. Goobar, D.E. Groom, D. Hardin, I.M. Hook, D.A. Howell, M.J. Irwin, A.G. Kim, M.Y. Kim, R.A. Knop, J.C. Lee, C. Lidman, R.G. McMahon, P. Nugent, N. Panagia, C.R. Pennypacker, S. Perlmutter, P. Ruiz-Lapuente, K. Schahmaneche, B. Schaefer, N.A. Walton, "The Distant Type Ia Supernova Rate," *ApJ*, (2002), **577** 120.
12. R.C. Mitchell, E. Baron, D. Branch, P.H. Hauschildt, P. Nugent, P. Lundqvist, S. Blinnikov, C.S.J. Pun, "Detailed Spectroscopic Analysis of SN 1987A: The Distance to the LMC using the SEAM method," *ApJ*, (2002), **574**, 293.

Refereed Journal Articles (continued)

13. A. G. Riess, P. Nugent, B. P. Schmidt, J. Tonry, M. Dickinson, R. L. Gilliland, R. I. Thompson, T. Budavari, S. Casertano, A. S. Evans, A. V. Filippenko, M. Livio, D. B. Sanders, A. E. Shapley, H. Spinrad, C. C. Steidel, D. Stern, J. Surace, S. Veilleux , “The Farthest Known Supernova: Support for an Accelerating Universe and a Glimpse of the Epoch of Deceleration,” *ApJ*, (2001), **560**, 49.
14. G. Goldhaber, D. E. Groom, A. Kim, G. Aldering, P. Astier, A. Conley, S. E. Deustua, R. Ellis, S. Fabbro, A. S. Fruchter, A. Goobar, I. Hook, M. Irwin, M. Kim, R. A. Knop, C. Lidman, R. McMahon, P. Nugent, R. Pain, N. Panagia, C. R. Pennypacker, S. Perlmutter, P. Ruiz-Lapuente, B. Schaefer, N. A. Walton, T. York, The Supernova Cosmology Project, “Timescale Stretch Parameterization of Type Ia Supernova B-band Light Curves,” *ApJ*, (2001), **558**, 359.
15. S. Podariu, P. Nugent and B. Ratra, “Cosmological-Model-Parameter Determination from Satellite-Acquired Type Ia and IIP Supernova Data,” *ApJ*, (2000), **553**, 39.
16. M. Sullivan, R. Ellis, P. Nugent, I. Smail and P. Madau, “A Strategy for Finding Gravitationally-Lensed Distant Supernovae,” *MNRAS*, (2000), **319**, 549.
17. G. Aldering, R. A. Knop and P. Nugent, “The Rise-Times of High and Low Redshift Type Ia Supernovae Are Consistent,” *AJ*, (2000), **119**, 2110.
18. E. Lentz, E. Baron, D. Branch, P. Hauschildt and P. Nugent, “Metallicity Effects in NLTE Model Atmospheres of Type IA Supernovae,” *Ap. J.*, (2000), **530**, 966.
19. R. L. Gilliland, P. Nugent, M. M. Phillips, “High Redshift Supernovae in the Hubble Deep Field,” *Ap. J.*, (1999), **521**, 30.
20. S. Perlmutter, G. Aldering, G. Goldhaber, R. A. Knop, P. Nugent, P. G. Castro, S. Deustua, S. Fabbro, A. Goobar, D. E. Groom, I. M. Hook, A. G. Kim, M. Y. Kim, J. C. Lee, N. J. Nunes, R. Pain, C. R. Pennypacker, R. Quimby, C. Lidman, R. S. Ellis, M. Irwin, R. G. McMahon, P. Ruiz-Lapuente, N. Walton, B. Schaefer, B. J. Boyle, A. V. Filippenko, T. Matheson, A. Fruchter, N. Panagia, H. J. M. Newberg, W. J. Couch, “Measurements of Omega_M and Omega_Lambda from 42 High-Redshift Supernovae,” *Ap. J.*, (1999), **517**, 565.
21. A. Riess, P. Nugent, A. Filippenko, R. Kirshner and S. Perlmutter, “Snapshot Distances to SNe Ia – All in ‘One’ Night’s Work”, *Ap. J.*, (1998), **504**, 935.
22. S. Perlmutter, G. Aldering, M. Della Valle, S. Deustua, R. S. Ellis, S. Fabbro, A. Fruchter, G. Goldhaber, A. Goobar, D. E. Groom, I. M. Hook, A. G. Kim, M. Y. Kim, R.A. Knop, C. Lidman, R. G. McMahon, P. Nugent, R. Pain, N. Panagia, C. R. Pennypacker, P. Ruiz-Lapuente, B. Schaefer and N. Walton, “Discovery of a Supernova Explosion at Half the Age of the Universe and its Cosmological Implications,” *Nature*, (1998), **391**, 51.
23. P. Nugent, E. Baron, P. H. Hauschildt and D. Branch, “Synthetic Spectra of Hydrodynamic Models of Type Ia Supernovae,” *Ap. J.*, (1997), **485**, 812.
24. P. Nugent, M. Phillips, E. Baron, D. Branch, and P. H. Hauschildt, “Evidence for a Spectroscopic Sequence Among SNe Ia,” *Ap. J. (Letters)*, (1995), **455**, 147.
25. P. Nugent, D. Branch, E. Baron, A. Fisher, T. Vaughan, and P. H. Hauschildt, “Low Hubble Constant from the Physics of Type Ia Supernovae,” *Phys. Rev. Letters*, (1995), **75**, 394; *Erratum*, *Phys. Rev. Letters*, (1995), **75**, 1874.
26. P. Nugent, E. Baron, P. H. Hauschildt and D. Branch, “Spectrum Synthesis of the Type Ia SNe 1992A and 1981B,” *Ap. J. (Letters)*, (1995), **441**, 33.

Refereed Journal Articles (continued)

26. D. Branch, E. Baron, P. Nugent and P. H. Hauschildt, "The Hubble Constant, Supernovae Light Curves and Spectra, and Radiation Transport," *Phys. Plasmas*, (1997), **4**, No. 5, 2016.
27. A. Fisher, D. Branch, P. Nugent and T. Vaughan, "Evidence for a High-Velocity Carbon-Rich Layer in the Type Ia SN 1990N," *Ap. J. (Letters)*, (1997), **481**, 89.
28. E. Baron, P. H. Hauschildt, P. Nugent and D. Branch, "NLTE Effects in Modeling of Supernovae Near Maximum Light," *MNRAS*, (1997), **283**, 297.
29. D. Branch, A. Fisher, E. Baron and P. Nugent, "On van den Bergh's Method for Measuring the Hubble Constant from Type Ia Supernovae," *Ap. J. (Letters)*, (1996), **470**, 7.
30. D. Branch, A. Fisher and P. Nugent, "On the Relative Frequencies of Spectroscopically Normal and Peculiar Type Ia Supernovae," *AJ*, (1993), **106**, 2383.
31. D. Branch, A. Fisher, T. J. Herczeg, D. L. Miller and P. Nugent, "The Distance to the Type Ia Supernova SN 1972E and It's Parent Galaxy NGC 5253: A Prediction," *Ap. J. (Letters)*, (1994), **421**, 87.

Conference Proceedings

1. P. Nugent, "The Next Generation Studies on Type Ia Supernovae: Diversity Versus Cosmological Probes," in *Frontier in Astroparticle Physics and Cosmology*. K. Sato and S. Nagataki, eds., (Universal Academy Press, Inc. – Tokyo, Japan) (2004), p. 315.
2. M. M. Phillips, K. Krisciunas, N. B. Suntzeff , M. Roth, L. Germany, P. Candia, S. Gonzalez, M. Hamuy, W. L. Freedman, S. E. Persson, P. Nugent, G. Aldering, A. Conley, "Infrared Light Curves of Type Ia Supernovae," Proceedings "From Twilight to Highlight - The Physics of Supernovae," ESO/MPA/MPE Workshop, Garching, Germany (2002).
3. D. Branch, S. Perlmutter, E. Baron, P. Nugent, "Coping with Type Ia Supernova Evolution When Probing the Nature of the Dark Energy," Contribution to the SNAP (Supernova Acceleration Probe) Yellow Book (Snowmass, 2001).
4. P. Nugent, "Cosmology From Type II Supernovae," Contribution to the SNAP (Supernova Acceleration Probe) Yellow Book (Snowmass, 2001).
5. P. Nugent for the Supernova Acceleration Probe Team, "SNAP: Supernova / Acceleration Probe, An Experiment to Measure the Properties of the Accelerating Universe," in *Particle Physics and Cosmology: 2nd Tropical Workshop*, J. Nieves, ed., (American Institute of Physics) (2000), **540**, p. 263.
6. P. Nugent, G. Aldering, "The Spring 1999 Nearby Supernovae Campaign," in *The greatest explosions since the big bang : supernovae and gamma-ray bursts, Space Telescope Science Institute Symposium, May 1999*, Mario Livio, Nino Panagia, Kailash Sahu, editors., (Space Telescope Science Institute), (2000), p.47.
7. D. Branch, P. Nugent, E. Baron and A. Fisher, "Type Ia Supernovae as Extra Galactic Distance Indicators," in *Proceedings of the NATO Advanced Study Institute on Thermonuclear Supernovae*, R. Canal, P. Ruiz-Lapuente and J. Isern, eds., (Kluwer Dordrecht) (1996), p.715.
8. P. Hauschildt, E. Baron, P. Nugent and D. Branch, "Spectrum Synthesis of Type Ia Supernovae," in *Proceedings of the Bamberg Meeting on Hydrogen Deficient Stars*, U. Heber, ed., (Kluwer Dordrecht) (1996), p.175.
9. P. Nugent, "The Physics of Type Ia Supernovae and the Value of the Hubble Constant," Conference on Astronomical Luminosity Functions in Honor of Maarten Schmidt, Cal. Tech., January 5-7, 1995.

Conference Proceedings (continued)

9. P. Nugent, A. Fisher and D. Branch, "Sources of Color Dispersion in SNe Ia," International Astronomical Union Colloquium **145**, Xian, China, May 24-29, 1993.

Supernova Discoveries & Spectroscopic Confirmation

1. CCCP, "Supernova 2004Z," *IAU Circ.*, (2004) **8294**.
2. CFHTLS SN Survey, "Supernovae 2003fe, 2003ff, 2003fg, 2003fh, 2003fi, 2003fj, 2003fk, 2003ga," *IAU Circ.*, (2003) **8148, 8151**
3. Supernova Factory, "Supernovae 2003V, 2003av, 2003ae, 2003af, 2003aw, 2003ap, 2003ax, 2003ay 2003bh, 2003bi, 2003bn, 2003bp, 2003bs, 2003cc, 2003cd, 2003ce, 2003cf, 2003cj, 2003ck, 2003cl, 2003co, 2003cc, 2003cd, 2003ce, 2003cf, 2003cu, 2003cv, 2003cw, 2003cx, 2003cy, 2003cz, 2003dc, 2003dd, 2003de, 2003df, 2003di, 2003ee, 2003gc" *IAU Circ.*, (2003), **8060, 8066, 8067, 8071, 8077, 8079, 8084, 8088, 8090, 8091, 8095, 8101, 8102, 8104, 8105, 8106, 8111, 8112, 8114, 8117, 8130, 8150**
4. Supernova Factory, "Supernovae 2002an, , 2002bh, 2002bk, 2002cx, 2002cq, 2002da, 2002dg, 2002dh, 2002ek, 2002fs, 2002ft, 2002fu, 2002gb, 2002gc, 2002gd, 2002gf, 2002gg, 2002gh, 2002gx, 2002gz, 2002hb, 2002hj, 2002jh, 2002ia, 2002kj, 2002kk" *IAU Circ.*, (2002), **7842, 7888, 7902, 7905, 7915, 7916, 7953, 7979, 7983, 7986, 7996, 7997, 7999, 8006, 8017, 8023, 8053, 8066**
5. Supernova Cosmology Project, "Supernovae 2001cq, 2001cr, 2001cs, 2001ct, 2001cu, 2001cv, 2001cw, 2001gk, 2001gl, 2001gm, 2001gn, 2001go, 2001gp, 2001gq, 2001gr, 2001gs, 2001gt, 2001gu, 2001gv, 2001gw, 2001gx, 2001gy, 2001gz, 2001ha, 2001hb, 2001hc, 2001hd, 2001he" *IAU Circ.*, (2001), **7649, 7763, 7764**
6. Nearby HST Supernovae Search, "Supernovae 2001ay, 2001ba, 2001bb, 2001ax, 2001el, *IAU Circ.*, (2001), **7612, 7614, 7616, 7618, 7724**
7. Supernova Cosmology Project's Spring 1999 Nearby Supernovae Campagin, "Supernovae 1999ab, 1999ae, 1999af, 1999ag, 1999ah, 1999ak, 1999al, 1999am, 1999ap, 1999aq, SN 1999ar, 1999as, 1999at, 1999au, 1999av, 1999aw, 1999ax, 1999ay, 1999az, 1999ba, 1999bb, 1999bc, 1999bd, 1999be, 1999bf, 1999bi, 1999bj, 1999bk, 1999bl, 1999bm, 1999bn, 1999bo, 1999bp, 1999bq, 1999bh ,," *IAU Circ.*, (1999), **7109, 7117, 7122, 7125, 7128, 7130, 7131, 7133, 7134, 7136, 7138**
8. Supernova Cosmology Project, "Supernovae 1998eo, 1998ep, 1998eq, 1998as, 1998at, 1998au, 1998av, 1998aw, 1998ax, 1998ay, 1998az, 1998ba, 1998bb, 1998bc, 1998bd, 1998be, 1998bf, 1998bg, 1998bh, 1998bi, 1998bj, 1998bk, 1998bl", *IAU Circ.*, (1998), **7046, 6881**
9. EROS Nearby Supernovae Search "Supernovae 1997eb, 1997ec, 1997ed, 1997ee", *IAU Circ.*, (1997), **6785**.
10. Supernova Cosmology Project, "Supernovae 1997ca, 1997cb, 1997cc, 1997cd, 1997ce, 1997cf, 1997cg, 1997ch, 1997ci, 1997cj, 1997ck, 1997F, 1997G, 1997H, 1997I, 1997J, 1997K, 1997L, 1997M, 1997N, 1997O, 1997P, 1997Q, 1997R, 1997S, 1997ek, 1997el, 1997em, 1997en, 1997eo, 1997ep, 1997eq, 1997er, 1997es, 1997et, 1997eu, 1997ev, 1997ew, 1997ex, 1997ey, 1997ez, 1997fa", *IAU Circ.*, (1998), **6646, 6540, 6804**
11. 1996 – Supernova Cosmology Project, "Supernovae 1996cf, 1996cg, 1996ch, 1996ci, 1996cj, 1996ck, 1996cl, 1996cm, 1996cn ", *IAU Circ.*, (1997), **6621**